Pro Excel Financial Modeling: Building Models for Technology Startups

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CHAPTER 1

Business Thinking and Financial Modeling for Technology Startups

Your financial model is a key management tool. If built correctly, it will provide invaluable assistance in understanding, managing, and presenting your business idea. It can assist you in the simple budgeting of cash, or it can serve as the primary basis for a valuation of your company.

In this chapter, I will explain several concepts related to technology startups. We will discuss questions that entrepreneurs get from investors. We will explore strategies and principles that create success and credibility, and we will view the early-stage enterprise through the lens of *value*. We will discuss the financial model, a tool that assists the entrepreneur in planning and in articulating his or her success strategies.

I have combined thoughts and strategies for startup company success with a financial modeling tutorial. There is not always a clear correlation between business thinking and the actual financial model, but where possible, I have tried to link business thinking with the mechanics of the model. There is an important reason for this link: The *story* of your company as set forth in your business plan and the quantitative outputs of your financial model must be consistent.

Analyzing, Demonstrating, and Explaining the Value of the Financial Model

This book emphasizes business thinking about your company as you design your financial model. Business thinking will enhance the probability that your model will provide a meaningful analysis of your company, helping you explain your success strategies to a potential investor. Your model should be designed to drive out the value proposition of your company, to uncover the *profit engine* of your enterprise.

Building a business requires focus, thought, understanding, and a clear business idea. Can you articulate and quantify the value proposition for your business idea? Can you demonstrate how you are going to achieve traction and prove that you have it? What's traction? Your company is demonstrating *traction* when it is executing your operating plan, essentially as you planned it, and when your business idea has credibility with employees, investors, partners, and customers. Everyone knows traction when they see it.

Implicit in any well-designed model are the answers for most, if not all questions that the entrepreneur must answer when pursuing the resources necessary to do business. I always say, "If you can model it, you can explain it." Many subjects are qualitative in nature, and they cannot be directly represented on a spreadsheet, subjects like the vision of the company, staff qualifications, market assessments, or the company mantra. For each qualitative subject, however, there is usually some form of representation in the model. Once you explain your strategy for penetrating a market,

your model should show the quantification of your strategy. Your company story should be represented by the model and vice versa. Assumptions, for example, about the number of units sold and the associated cost of goods sold should make sense based on your qualitative explanation of the market opportunity.

Make sure that you have a thorough understanding of your business idea and have done sufficient market research prior to any serious modeling exercise. You remember "garbage in, garbage out," right?

■ **Note** Financial models are not about absolute values; they are about relationships. A good financial model demonstrates the relationships and the business tradeoffs that compose the profitability potential of the business idea. If you understand the relationships, the drivers of revenue, drivers of cost, and critical success factors, you understand the core of the business.

Many believe that sales, profit, and profitability projections shown in financial models are the keys to success in attracting investors. The truth is that investors will come up with their own projections. Investors want to understand the assumptions, the structure, and the relationships within the model. If assumptions, structure, and relationships pass the test, the entrepreneur has demonstrated complete understanding of the business side of the enterprise.

Most sophisticated potential investors are more interested in the soundness and logic of your thought process than your absolute projections. The further out in time the model projects, the weaker the validity of the forecast. However, in the short term, the model can be extremely valuable as a tool to forecast cash needs.

Attracting the Resources You Need to Grow Your Business

To state the obvious, business ventures require resources. There is a high probability that you will need to borrow or raise money at some point in the life cycle of your early-stage venture. One day, you will find yourself making a pitch to a relative, a banker, an angel investor, or a venture capitalist seeking the funding you need to build or grow your business. The question may not be asked explicitly, but investors will be calculating the value of your business as part of their assessment of your proposition. You must be able to explain the logic, rationale, and workings of your venture with sufficient clarity to enable the investors or lenders to make a determination of value. The investors must be able to arrive at an understanding of your company's value if you are to attract the resources you need to do business.

Don't underestimate the value equation in attracting talent and employees. High-quality employees make similar calculations of value to determine if they are willing to invest their time and energy, and sometimes reputations, by coming to work for your venture.

The financial model provides you with a powerful tool for articulating your business idea and assisting the investor in determining a value profile for your company. In the following sections, I will cover two important topics that are directly related to establishing the value of your company:

- The big three questions—the *big* questions that investors ask entrepreneurs
- Strategies that build value and credibility

The Big Three Questions

I have attended meeting after meeting in which the technology entrepreneur failed to convince potential investors to invest in a company. In most cases, the presentation failed to prove to the investor that the entrepreneur had a firm grasp on the business model needed to take the idea to market and profitability. Technology was rarely the showstopper. The problem repeatedly centered on the business model: the business assumptions that failed the investor's sniff test.

"What we've got here is failure to communicate."

—Donn Pearce, Cool Hand Luke

The investor is looking for entrepreneurs that have a clear sense of their opportunity and how to build the business. A good entrepreneur understands both the technical and business opportunity and how to flesh out the numbers behind it. The entrepreneur inevitably encounters *three fundamental questions* from potential investors and lenders. The questions follow:

- Cool idea; how do you make money with it?
- How much do you need and when?
- What do you think your company is worth?

These questions, which I call *the big three*, represent the starting point from which the investor or lender proceeds to assess the risk/opportunity profile of your company. These questions are actually pretty straightforward. They are the same questions anyone asks when they are thinking about purchasing virtually anything. Does it work like you say it does? How much do you want for it? What makes you think it's worth that?

What about an exit strategy? Isn't that a major question? My prejudice is that too much thinking about exit strategy is counting the chickens before they hatch. Concentrate instead on validating and building value and answering the big three questions. The exit strategy will become apparent. If the investor insists on a strategy, offer a big smile and say, "It will probably be a strategic sale, but there is always the possibility of an IPO."

How you'll make money with your idea, team, market opportunity, and the product/value proposition must be justified and explained. Risk is a major factor in any value assessment. Where is the risk in the overall business and technology model, and how may it be quantified or mitigated? Risk is the dark side of critical success factors. What is the risk that the venture's critical success factors will not be realized?

Technology differentiation or business model differentiation is also important. Internal processes for development, tools, code review, and the philosophy around development must support cost estimates to build the technology and product introduction schedules.

How much cash is needed and when? Investors prefer to fund growth in sales and building out of capability rather than early-stage research and development.

From the earliest idea scratched on a napkin through the various stages of growth, a fundamental question is repeatedly asked about early-stage companies looking for resources, "How much is it worth?" The entrepreneur will attempt to *answer* this question, but the investor will *determine* the answer, and the answer, over the life cycle of the endeavor, will greatly influence the prospects for success.

To survive due diligence by a sophisticated investor, all of these questions must be answered. A complete, well-designed financial model will not only facilitate the answers but will also provide the entrepreneur with a tool to examine "what ifs" with various assumptions and scenarios.

■ **Note** The perceived value of the early-stage venture is the primary determinant of its ability to attract the resources needed to grow the business.

Strategies That Build Value and Credibility

As you are engaged in business thinking about your technology idea, keep the following strategies and concepts in mind. I have worked with a large number of startups and have found these strategies to be invaluable as a framework for success. Each venture is different, but these strategies universally apply. I categorize the strategies into three groups as follows:

- Performance and execution:
  - Get there fast.
  - Take early action.
  - Use a feedback loop and respond rapidly.
  - Use prototypes for simultaneous research and selling.
  - Be agile with technology and development.
  - Remember that cash is king.
  - Keep good books.
- People and process:
  - Secure the team.
  - Skin in the game.
  - Seal the deal.
  - Plan for growth. Can the business scale?
- Ownership and control:
  - Know what you own.
  - Own your technology.

Performance and Execution Strategies

Performance and execution strategies are about action. Successful implementation of these strategies builds credibility that the company can perform. Investors closely watch execution and are excited by rapid progress and momentum. The old adage that "actions speak louder than words" is what these strategies are about.

Getting There Fast

"Get there fast" is the tag line for my consulting company and my primary business mantra. Successful entrepreneurs run their companies with a sense of urgency. This sense of urgency drives them to get operational quickly and to be early to market. They beat their competitors to the punch and quickly get prototypes in front of key customers while driving relentlessly toward positive cash flow. They react quickly and execute with a minimum of mistakes. The person who has the capability to operationally execute in this manner has the right stuff to be an entrepreneur.

Excellent execution is critical, especially if your concepts can be copied and replicated. If an innovation cannot be patented or kept secret, your best protection is to be early to market and to

create competitive barriers like building a strong brand name or having an excellent reputation for customer support.

■ **Note** My favorite image of the entrepreneur is Wile E. Coyote from the *Looney Tunes* cartoons. He is so focused on catching the Road Runner that he will run over the edge of a cliff and up an invisible stairway into the air. He keeps going up as long as he doesn't stop and look down. If he looks down, he falls. Don't look down!

Startups are risky business at best. Starting with a conservative idea is better, if that is possible. Ventures that are not capital intensive and have high enough profit margins to fund internal operations are definitely preferred. The entrepreneur should be looking for projects that can generate cash and break even quickly.

Think simple. Simple operational models have much lower risk profiles. Try to find models of operation that can be implemented quickly and that don't have high fixed costs so that cash crunches don't occur when schedules slip.

Ideally, offer high-value products that can support the costs of direct selling. Early-stage companies cannot afford to give away margin by relying on indirect sales channels or to severely discount or lose lead to gain future business. If your idea cannot generate cash and strong margins right away, take another look at the idea.

Taking Early Action

Startups must quickly develop market intelligence sufficient to guide them through key decisions in product specification and product positioning so that dollars spent and product development effort expended result in early business success. They must take early action to interview, understand, and gather requirements from representative companies in their target markets. This is why it is important that one of the founders or entrepreneurs have relevant industry experience. Industry credentials of the founders jump-start the connection with relevant and important sources of market information. A preexisting rotating file of industry experts that can be called and interviewed is invaluable. Industry experts should be interviewed with questions like, "If we built a product with this form, feature, and functionality, would you be interested in buying it? Why? How much would you pay for it? Why?"

■ **Note** I was the first president of a software company that developed front and back office systems for the moving industry. Jim, the owner, was a subject matter expert in moving industry software and operations and was well known and highly respected in the industry. I had free rein to put together the working infrastructure, processes, and procedures for the software company. We designed the software with heavy guidance from Jim. After two and a half years, I stepped aside, and Jim stepped in as president. Leveraging his industry ties, his company is now the leading provider of software systems to the moving industry.

Using the Feedback Loop and Responding Rapidly

Startups must clearly identify opportunities, clearly understand and validate their value proposition, and develop offerings that deliver value. There are many unknowns, and the company must, from the beginning, implement a hot feedback loop method of doing business that generates a continuous stream of market intelligence. The company must be able to rapidly and intelligently respond and adjust to this market information feed. The feedback loop taps into representative market prospects for information and the company responds by fine tuning its offering to assure maximum price performance and acceptance. The company's ability to tap into and correctly respond to this early customer feedback loop is a critical success factor.

Herein lies a critical balancing act: the ability to parse clues from the field and respond with enhancements and improvements while simultaneously maintaining the vision for the company. The entrepreneur must be able to correctly interpret the data from the field, including sometimes ignoring it. For instance, the original market studies that tested the idea of copy machines provided resounding feedback that everyone was perfectly satisfied using carbon paper.

The true test of an entrepreneur's ability to execute is the ability to balance the vision of the company with very real market data feedback. This ability to make the right decisions and to spend money wisely often makes the difference between success and failure.

Successful entrepreneurs spend their time on operational analysis, not strategic planning. Be mindful of the marginal cost and value of pure research. It is better to get out there with a product or idea than to spend endless hours in marketing research. Where new ideas and technologies are involved, many critical uncertainties cannot be solved through market research. Concentrate on questions and issues that you can reasonably expect to resolve yourself.

Using Prototypes for Simultaneous Research and Selling

Strategies that emphasize the use of working prototypes work well and can accelerate product development. When prototypes are placed in the hands of customers, real-time marketing information is garnered, software is tested and improved, customer relations are built, and often the customer is paying along the way. If customers like your prototype, they are the source for the first orders for the product.

■ **Note** Users of prototypes, beta customers, or early-stage strategic partners should be directly representative of the larger market or market niche that is ultimately targeted.

Building a prototype and getting it into the hands of a customer yields real-world, specific, and actionable information. The use of a prototype also uncovers key information about the way your customer utilizes and views competitive products. Prototypes are the best way to garner specific customer feedback on form, feature, functionality, and performance. Prototypes and beta partners can help you build early strategic partnerships and relationships and help you gain your first paying customer.

Being Agile with Technology and Product Development

There was a time in my career (showing my age) when there was genuine concern that the state of technology could not support some of the newer ideas for products and services. Standards were few, and major players had not yet emerged. Those days are long gone. There will always be complex engineering problems that require difficult development and tradeoff decisions between development environments and vendors, but for the most part, the tools are there to do pretty much anything you can imagine.

A company's ability to rapidly, and with agility, develop products is a key indicator of its ability to perform and execute. Product development, especially the development of new products by early-stage technology companies, is a huge undertaking. Product development cost is another key metric for investors. Companies that can optimize resources and develop products at lower costs are demonstrating critical business capabilities that may become a significant competitive advantage.

Companies must demonstrate their ability to hire the right talent at the right time during the evolving stages of product development. Early, visionary, and pathfinder developers are needed. They must have the ability to work quickly and innovatively in unstructured and rapidly changing environments. The company must demonstrate an uncanny ability of understanding real customer requirements and build product functionality that meets these requirements.

I cannot emphasize enough the requirement that technology be developed utilizing a formal methodology. There is usually tremendous pressure to get something out there in the form of a working prototype. I agree with this philosophy as long as the development is being managed using industry-standard methodologies for development, configuration management, and documentation.

As the company grows and expands its products and services, the requirement for a standard software development life cycle becomes more critical. The ability to demonstrate industry-standard software development methodologies brings great value to a technology venture, adding credibility to claims of scalability.

Most investors assume that the technology will work as advertised. They prefer to invest in building out a product from the working prototype phase and funding resources to generate sales and growth. Funding early-stage technology research and development is considered high risk.

Remembering That Cash Is King

Repeat after me, "Cash is king!" The single most important status that an early-stage company can attain is cash flow positive. The smart entrepreneur knows to focus on cash, not profits or market share or anything else. He has the wits and creativity to operate without much of it.

■ **Caution** If the market does not pay for your business and you can't develop positive cash flow, your idea probably is not good enough.

Smart entrepreneurs use their energy to figure out ways to self-finance rather than scheming to raise money. They are cash fanatics, working cash forecasts with a very sharp pencil.

Their financial models are their primary cash forecasting tool, providing analysis of margin contributions, cash flows, and break even points.

In my experience, cash constraints are the number one problem of startups. Cash-strapped startups make several common mistakes:

- They buy business, deeply discounting their products or services and taking on customers that put them under with their demands and unwillingness to pay. Resources and energy can drain quickly when these types of relationships are in play.
- They try to leverage themselves into indirect sales channels and through strategic partnerships hoping to avoid the cost of direct selling. This can be a critical error, giving away control of the sales process.
- They take on investors too soon and find that investor expectations and oversight limit their flexibility and ability to operate.
- To save money they outsource the *family jewels*, key functions or technology that they cannot afford to have controlled by outsiders. This always has a dampening effect on the value of the venture.

■ **Note** As an entrepreneur, you should go as far as you can on your own resources. Every milestone you achieve on your own dime is worth significantly more to you as a founder than are subsequent milestones financed by others. You will never have more leverage (ability to increase your personal net worth) than when you are working on your own dime.

Figure 1-1 shows a cash curve generated by a financial model. A *cash curve* shows a company's cumulative need for cash based on operational projections. When the company breaks even, that

is, when total operating expenses are covered by cash inflows, the cumulative need for cash has peaked. Note that the bottom of the cash curve coincides directly with the point of cash flow positive. This is the point of maximum financing needs.

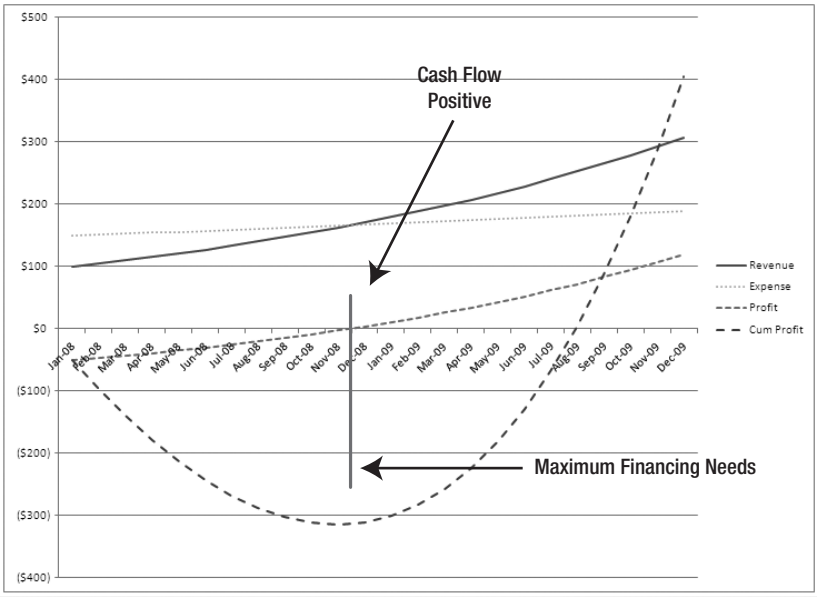

Figure 1-1. *Model-generated cash curve showing cumulative cash (financing) needs at the point of reaching cash flow positive*

Keeping Good Books

Keep excellent records and books. I have seen many investors go cold when they found that the books of the company consisted of a bank account and a couple of spreadsheets. It is important to establish a standard set of books and to keep them updated. It is critical to maintain clear records of ownership and copies of all operating and employment agreements. One of the items on any investor's due diligence checklist is a review of financial records and all operating agreements.

People and Process Strategies

The following strategies are about people and motivation. Early-stage companies are, at first, nothing more than their people. These strategies are about attracting and securing the team that is needed to execute the business plan. Often, for early-stage technology companies, the right person for the job is more motivated by the excitement of the challenge or upside potential than by just having a job. Early-stage companies get into trouble when they don't formalize agreements and set expectations with their early-stage hires.

Securing the Team

Your team is critical. At very early stages, all company value is a combination of your idea and your team. Investors will balk if they aren't impressed with the team, even if the startup is targeting a great market with a strong technology. At least one person on the team should have strong and

relevant technical expertise, and another, relevant business and market expertise. Most of the entrepreneurs that I have worked with had a combination of technical expertise directly related to their business idea and excellent sales skills. Forget the dream team; you probably can't afford them. The challenge is to find and motivate diamonds in the rough. Personality, work ethic, and common sense are most important.

Skin in the Game

Investors will require that the founders and key employees demonstrate a firm commitment to the venture. Having such a firm commitment is typically called *putting skin in the game*. Investors expect full-time commitment (no part-time job situations) and financial risk on the part of the entrepreneurs. Financial risk is clearly demonstrated by cash investment in the company and, to a lesser extent, by deferred or reduced compensation. The venture should provide enough financial incentive to compensate the entrepreneur to devote time exclusively to it.

Sealing the Deal Early

A mentor of mine once gave me sage advice: Seriously think through and plan out all of your partnership and employee agreements and terms for offering equity and compensation before you get started. Once the eagle flies, that is, once there is success or the smell of success in the air, the pencils will get sharpened, and you will have a much harder time negotiating deals with key players.

I no longer believe in *sweat equity*, the idea that employees can earn ownership in the company by working at lower-than-market rates. If the employee does not bring critical skills to the table, their compensation should be limited to salary and benefits. Stock should be exclusively owned by the founders, cash investors, and individuals who bring specific, unique, and highly valuable expertise to the table.

■ **Note** Today, it is practically impossible to set up any type of plan for employees to earn equity that is not treated as compensation and subject to taxation.

Key personnel that have access to trade secrets and developers that have intimate knowledge of your technical solutions should sign nondisclosure agreements at a minimum and noncompete agreements where they are applicable.

Planning for Growth

As the company moves from early stage into full-scale operations, a new type of management and operational team should join the company. The company must prove that it can scale into a full operating capability at an appropriate time in its development.

Entrepreneurs dream of exit strategies, but exit strategies usually imply that the founders must leave. Is this strategy built into the operational plan of the company? The founder brings unique capabilities to the table; can these capabilities be translated into repeatable performance without that individual?

The operational plan should acknowledge a transition from startup into operational status and demonstrate the costs and tradeoffs that are involved.

Ownership and Control Strategies

Many technology startups are highly leveraged when it comes to ownership and control. Close examination of their operations often reveals that critical functions and processes have been outsourced to save money. Many learn the hard way that outsourcing the family jewels can be precarious. Just because you own it, does not necessarily mean that you control it. Just because you control it, does not necessarily mean that you own it.

Knowing What You Own

When you purchase real estate, the seller must provide proof of title, in other words, proof of ownership for what is being sold to you. An investor in a high-tech startup is going to ask the same basic question of your company, "What do you actually own?" The answer to this question is not as cut and dried as in a real estate transaction. Ownership in this context has many dimensions, but it is critical in establishing the ultimate value of your company. Investors will investigate the multiple dimensions of ownership to determine what they are buying when they invest in your company.

WHAT, EXACTLY, ARE YOU SELLING?

A company asked me to consult with them concerning an exit strategy. The owners were thinking about exiting their business, and they wanted to begin a valuation process for their company. They had been in business for five years and sold nutritional health products and vitamins. After careful questioning, I discovered that their products were completely generic and that they had no patents or significant trade secrets related to the formulation or production of their products (all formulation, production, and shipping was outsourced). What they actually owned was their brand name and an excellent reputation for customer support.

What at first appeared to be a company with a unique product line turned out to be a marketing company with a recognizable brand and a loyal customer following. There is a huge difference between the value of a company that owns a unique product line and a marketing company that sells generic products. Which do you think is worth more?

Surprisingly, a number of entrepreneurs believe they can leverage their company into existence with minimal expense through outsourcing. They don't realize that a key component of their value proposition is their control over and protection of the attributes that make their company unique, that differentiate them from others.

Startups must own and control a central core of expertise in areas that are critical to their success. They must own and control a capability, technology, or ability to execute that is unique and separates them from their competition. Technology, operational capability to execute, and qualities that differentiate are critical attributes: they cannot be outsourced and must be kept under the control of the company. When building your company, keep a sharp eye on the ownership and control dimensions related to your company.

There are a number of dimensions of ownership:

- *Financial*: Financial ownership is generally the most straightforward type of ownership. It generally consists of ownership shares in the company. As long as you own 51 percent of the company, you have ownership and control.
- *Operational*: Operational ownership means operational control over or the ability to influence operational outcomes through discrete actions. For example, if I outsource key components of my software development, I have less operational control over the development process than I do over a developer who is an employee.

- *Market*: How can you control and own your market? Many products and concepts are hard to prove, but once proven, easy to replicate. Make sure you are protected by sustainable barriers to entry. Your best bet is quickly establishing brand recognition and a reputation for being the best at what you do. A direct sales model gives you control over your sales cycle. Indirect channels can be problematic unless you are well established and have created a pull for your product.
- *Relationships*: Can you own and control relationships? Being responsible for the satisfaction of your customers and the performance of your products and services requires that you own or take responsibility to listen to them carefully and respond to them in meaningful ways. Companies that do not own and control their relationships do not last for very long. A competitor who will take ownership of your relationship with your customer is always waiting in the wings.
- *Intellectual property*: The various ways to own and control intellectual property fall into the following categories:
    - *Patents*: My experience is that investors have varying views on the value of patents. Having them is a plus, but you have to think downstream before spending a great deal of time and effort. The primary question I ask regarding patents is, "Can I foresee the need, and do I have the resources to defend this patent? Is it worth it?" This is definitely a question for specialized legal counsel.
    - *Trade secrets*: Make sure your employees understand your company's definition of a trade secret and that they understand that their nondisclosure agreements do not permit the dissemination of this information. For instance, your customer lists, your financial records, and your internal processes for product development and customer support all are trade secrets. Make sure that your employees know this and document that this data has been presented to them.
    - *Copyrights and trademarks*: Copyrights and trademarks should be pursued on all applicable materials and marks of the company.

Owning Technology

Do you own and control your core technology? Are there critical components that are licensed from third parties? How much of your core is under the direct supervision of your employees, and how much is outsourced? Today, you can theoretically outsource 100 percent of your development. Many startups make the mistake of outsourcing critical components of their technology, secure that they are covered by ironclad performance and confidentiality agreements. My experience is that you are significantly increasing your risk profile by letting key pieces of your product development wander outside of your immediate control.

Tip I can't say this enough: Never, never outsource the family jewels—those components or capabilities that differentiate you from the pack and make your company unique.

Partnering and outsourcing key components of your technology development process work better once you are established; I do not recommend these for the early-stage enterprise.

A LESSON ON OWNING YOUR TECHNOLOGY

My partner and I approached a large cable company that owned sophisticated document management software. We had a plan to modify their software and provide sophisticated online backup of PC files over the Internet. It took us a year to get their attention and negotiate a performance-based software usage license, but it finally happened. I raised working capital from angels based on our idea and the license agreement. I paid the cable company $100,000 to prototype the modifications. When the prototype was finished, my partner and I demonstrated the prototype to a large storage technology company. They paid us $150,000 to work with them exclusively and signed a letter of intent to work with us to the tune of $1.5 million.

When I excitedly presented the news to my partner at the cable company, his face went white. The next day, their legal team called us to announce that we were in violation of our performance agreement and that our license was rescinded. They did, however, offer us $500,000 for our company. We were young and dead broke. We sold our company, gave the investors all their money back plus 30 percent, and continued entrepreneuring. (By the way, the prototype was worthless—wrong architecture—and would have never worked.)

Common Ways of Getting Stuck

It is common for early-stage companies to lose momentum and get bogged down early in their product introduction cycles. They waste time and money frozen in the headlights as they make multiple attempts to attract the generic customer base that lies beyond their initial beta partners and the market's early adopters. They struggle with various sales and marketing techniques and positioning and repositioning their product. At this stage, it is common to see companies adding form, feature, and functionality to their products in an attempt to find the magic formula to move the product off the dime. This floundering, what I call *wobbling*, is usually the result of several common mistakes:

- The companies did not fully validate their value proposition. Their market research was faulty. Prior to beginning development, they did not have a full understanding of the true value of their product from the customers' point of view.
- They have underestimated the high cost of overcoming customer inertia and do not realize that their value proposition may not be compelling enough to cause potential customers to switch to their product.
- They have not identified the actual economic buyer of their product and service, the person or organization that is the true decision maker and catalyst for the sale.
- They adopted the "build it and they will come" philosophy of product development, assuming that their better mousetraps would be immediate successes.
- Working with early adopters during the prototype phases of product development, they have not considered the needs and requirements of the greater market population, those companies that are not early adopters.

This list of common errors results from two fundamental weaknesses that get my vote for best venture killers in the universe:

- Not clearly understanding your value proposition
- Not identifying your true economic buyer

Now that we have discussed strategies, let's discuss the concept of value. What happens to the value of a company as it accomplishes its goals?

CLOSE, BUT NO CIGAR

My client developed a state-of-the-art, GPS-based data collection system that not only collected geo-referenced field data but transmitted the data in real time back to the home office. This provided the field data collection project manager with real-time field productivity data and other operational visibility. An early product release was used to complete a large data collection project, and it worked perfectly, as advertised. When the client performed an analysis assessing the benefits of real-time data, they decided that, though they liked the idea, the benefits were not great enough to change their current way of doing business. *Close, but no cigar*. They had to reposition their product offering, shifting and improving their value proposition. We will discuss value propositions in greater detail in Chapter 8.

Looking at Startups from the Perspective of Value

In the world of startups, all aspects of analysis, presentation, and positioning of the company lead to a determination of the value of the enterprise.

The Value-Based Enterprise Perspective

Once I understood that the perceived value (value profile) of my company was a major factor in my ability to acquire resources, I changed my perspective and the way I looked at my company. I began viewing accomplishments, or the attainment of operational milestones, in terms of their contribution to the value profile of my company. I began to view the progress of my company as a series of value events. I define a *value event* as any event in the development of a company that adds value, real or perceived, to the company.

Here are some examples of value events:

- Filing a provisional patent application
- Having a key developer join the company as an employee
- Reaching the beta stage of product development
- Having a strategic partner agree to beta and field test a product
- Making your first arms-length sale of the product
- Reaching cash flow positive

As the company executes its operating plan and achieves objectives, it builds credibility and its value grows. As its value grows, it becomes more attractive to investors, and the cost of raising money from them goes down. When employees embrace the value event perspective of performance, rather than the traditional view of completing milestones, a cognitive shift takes place resulting in increased productivity and a new emphasis on increasing the value of the venture rather than just completing projects. Since most entrepreneurial staff members are inherently in it for the payoff, an emphasis on progress as value events can motivate and help guide the operating decisions of the company as they keep the company valuation always in mind.

■ **Note** As the value of your venture increases, the cost of acquiring resources decreases. For example, as the venture begins to sell in the commercial market and sales forecasts firm up (value event); the company has more negotiating power with the suppliers of components.

Four Primary Value Events

There are four value events of early-stage technology development that are critical to bringing the company into true viability and profitability. Each value event represents the passage from a development phase into operational capability.

- *Proof of product*: You have built your product and proved it in the field.
- *Proof of market*: You are selling your product at a profitable price.
- *Proof of scale*: You are positioned to grow the company to the next level.
- *Cash flow positive*: The free cash you generate is equal to or exceeds your cash needs.

As each of these phases is completed, company value and credibility increase substantially over prior periods of performance. Credibility begins subjectively with the nature of the startup team and builds objectively over time as the company begins to execute its operating plan.

Figure 1-2 shows the company's cost of resources decreasing as the company achieves value events over time. Why does the cost of resources decrease? As value events are achieved, credibility increases and, for instance, conditions for raising investment dollars become more favorable. Negotiating strength with suppliers grows. Top employees can be attracted without special incentives, because the company looks strong. In Chapter 11, we will look at company valuation and investment in detail, and I will show how investment dollars become easier (cheaper) to attract as the company accomplishes value events. Most companies' capital raising strategies are closely tied to the achievement of value events.

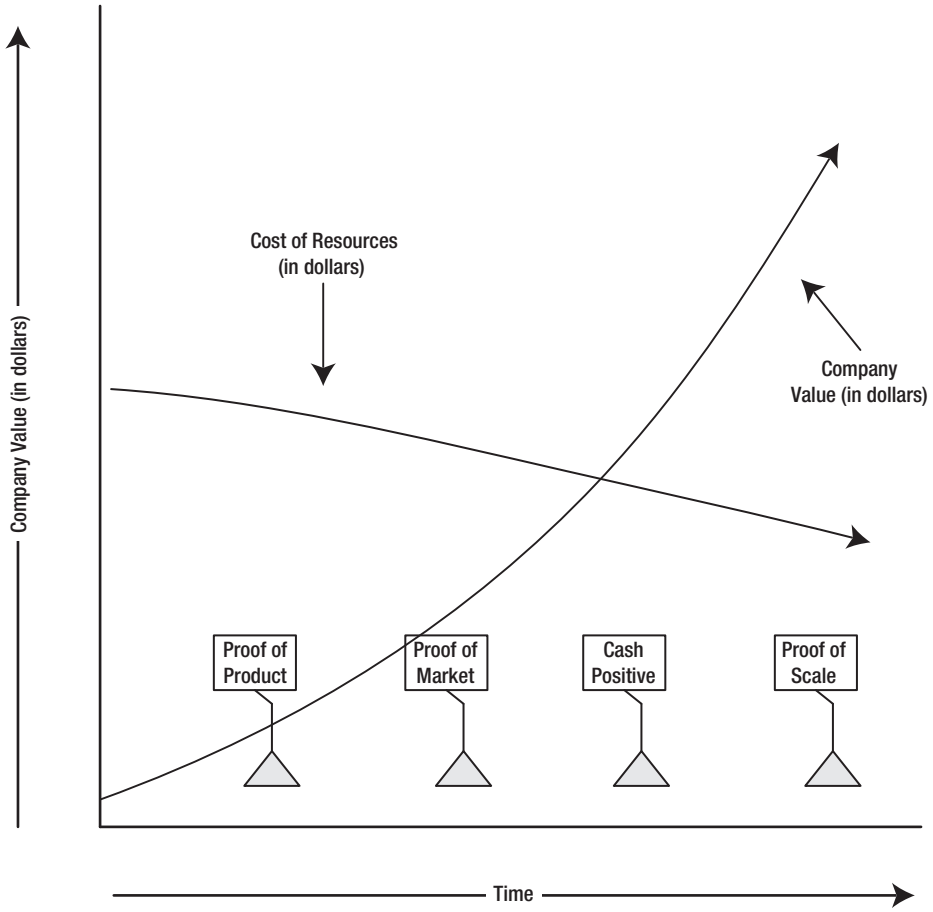

Figure 1-2. *As a company achieves value events, the cost of acquiring resources decreases.*

The following value events increase credibility by demonstrating proof of concept for the business model and the ability of the company to execute its operating plan.

Proof of Product (POP)

The technology or service of the company has been developed and beta or field tested. The first commercial version of the product is released. The company has achieved POP when

- Research and development (R&D) is complete.
- Product development is complete.
- Beta and field trials are underway.
- Commercial release 1.0 is imminent.

Proof of Market (POM)

POM is achieved when the company closes a number of initial *arms-length transaction sales*, which are sales to customers after completion of beta tests and field trials.

Arms-length customers meet the following criteria:

- They match the standard target customer profile as set forth in the sales and marketing plan.
- They are not related to the startup. They have no personal relationship to the company.
- Pricing and margin are at commercial levels as set forth in the sales and marketing plan.

Why all the fuss about arms-length transactions? Many startups go through grey area periods where they are selling to clients based on unique personal relationships, and the clients are buying at deep discounts or are early adopters. This period can be a particularly critical period for the startup as it tries to bridge the gap from its early product development and beta clients into a commercial environment. Many ventures flounder at this point, because the companies cannot lift themselves out of the custom development mode that gave them initial access to the market and into the provision of a generic commercial product to the broader market.

Proof of Scale (POS)

Rapid growth (a problem many would like to have) can present a critical challenge to an early-stage company. Investors closely assess a company's ability to grow or scale into higher levels of volume and to move from the entrepreneuring stage into full operations.

POS is achieved when the company is experiencing significant growth in sales volume and has proven its ability to acquire and manage the resources necessary to support the growth. A key criterion is the company's ability to maintain the same or better quality of support at the higher levels of volume.

Examples of critical issues encountered with rapid growth are the following:

- The company has inadequate working capital to fund resources needed for growth.
- The company suffers an inability to provide high-quality customer service at high levels of volume, resulting in a loss of reputation in the marketplace.
- The early-stage staff is not equipped in terms of experience or inclination to manage the challenges that are presented by high growth, that is, the challenges of a company that is moving past startup status.
- The company is unable to achieve profitability scaling projections at higher growth levels. Marginal costs of producing, selling, or supporting products are higher than originally forecast, thus reducing longer-range profitability.

Cash Flow Positive

Cash flow positive speaks for itself, and it speaks loudly to the value of your enterprise. Again, *cash flow positive* means that the free cash flows from operations meet or exceed cash needs for operations. The implications of this value event are significant. You have demonstrated a key component of the viability of your business.

Now that I have outlined the value concept for early-stage technology companies, it is time to think about the tool we will use to plan and articulate our success strategies, the financial model.

Thinking Critically About the Business and Financial Model

Developing a financial model is an excellent exercise in critical thinking. Modeling requires that you make specific assumptions regarding the nature of your business idea. It requires that you project operating results like sales volumes and expenses and show operating schedules in a formal way. Modeling requires that you establish and understand and then program the relationships between the moving parts of your enterprise.

A financial model lifts the operating concept out of the head of the entrepreneur and puts it on paper for all to see. It serves as a basis for analysis and is the underlying foundation for the business plan. The creation of a financial model is critical to establishing the legitimacy of your idea. As soon as you have a good feel for your major operating assumptions, you can start modeling.

I create the financial model first and then write the business plan. If I am happy with the model and it makes sense, the business plan is easy. It becomes the company story, explaining the numbers and relationships found in the model. Think of the model as the framing of a house and the business plan as the interior finish and furnishings. Be careful about doing this in reverse order. Take the time to develop the model, and the business plan will drop out naturally.

Professional investors expect a written business plan. The quality of the business plan is a clear indicator to the investor of the seriousness of the entrepreneur.

The next section is an overview of principles and functions associated with the development of financial models. I will explain the following topics as they relate to building and using a financial model:

- Design principles
- Design dimensions
- Major functions performed

Financial Model Design Principles

Most people think of financial models as a collection of spreadsheets. A financial model is more. You should think of your financial model as a computer program (created in a spreadsheet environment) and apply the rules and concepts of software development to the process of creating your model.

The principles of financial model design follow:

- *My version of the 80–20 rule*: My version as it applies to financial models is this: the last 20 percent of effort to make the model elegant by providing complex user interfaces is not worth it. The model should be useable by knowledgeable people within your organization. A financial model is an internal management tool, not a consumer product.
- *Modular, loosely coupled design*: The more modular and loosely coupled your design, the less reprogramming you will have to do. This is the case for all software development, but it is particularly important in financial models. By definition, models change a lot and are used in ways that may be different than originally anticipated.
- *Checks, balances, and diagnostics*: As you design each component of your model, you should incorporate two types of checks and balances:

- *Math checks*: Excel does not make math errors. Calculation errors will occur if your formula relationships (based on your structural design) are not correct. You must incorporate applicable math checks at the component spreadsheet level. Code included with this book will suggest contextual methodologies for math checks.
- *Sanity checks*: Subtle errors or errors that occur with certain combinations of input variables are sometimes easy to miss. Common errors occur when incorrect calculations are masked because the outputs are rolled up into greater totals. When looking at model components, you should ask yourself the question, "How do I test these calculations to see if they make sense from a business perspective?"

■ **Tip** Use charts to sanity check model output. For example, I will create Line charts of line item budgets and look at them visually to see if they make sense. If rent is not going up, and that is an assumption, I have a formula problem. I might not notice the error, because it is buried in total facilities expense.

Financial Model Design Dimensions

There are four fundamental design dimensions to a financial model. What is a design dimension? A *design dimension* is an important structural or design consideration that must be addressed in order for the model to perform to expected standards. For example, under the period-of-performance design dimension, the model must accommodate the present year and five subsequent years. In order for it to support all calculation functions, the model must be designed to accommodate YR 0, YR 1, etc., data and 60 individual months (5 years) of data.

The following section will review the four fundamental design dimensions:

- Ability to generate standard financial reports
- The unique structure of your business model
- Operating variables
- Period of performance

Let's look at each of the four fundamental design dimensions in more detail.

Ability to Generate Standard Financial Reports

Your model will generate a series of analyses and reports that will ultimately roll up into three key financial reports:

- *Profit and loss statement*: A summary of revenues, costs, and expenses within an accounting period. It is also called an *income statement*.
- *Statement of cash flows*: A financial statement that provides information about a company's cash receipts, cash disbursements, and net change in cash during an accounting period.
- *Balance sheet*: A financial statement that reports the assets, liabilities, and equity of a company as of the end of a particular accounting period.

These are the primary reports used for the financial analysis of your enterprise and are usually the first reports reviewed by the financial community. The operational analysis worksheets and their lower level components roll up into these reports. It is critical that you understand the rules that govern the creation of these reports so that your model generates these reports accurately.

Your model will generate forecasts of the profit and loss statement, the statement of cash flows, and balance sheet. Forecast financial reports are called *pro forma*. If your company has any track record or actual performance, your *pro forma* will have to integrate or line up with your actual results. For instance, the profit and loss statement would show actual results through the first quarter of a year and forecasted (*pro forma*) for the remainder of the current and subsequent years.

Your model should be designed from the beginning to match with actual company financial statements. If possible your company chart of accounts should be reflected in your model design.

■ **Note** You don't have to be an accountant to develop these reports, but it is a good idea to have the company accountant review your assumptions and methods regarding this dimension of the model.

The Unique Structure of your Business Model

You are modeling the unique business structure of your company. Your model will map or replicate the underlying structure of your business and show how all the moving parts fit together. The specification of this structure constitutes the primary set of critical assumptions or functional requirements for the model design.

For example, your product offering consists of a software module, a support contract for that module, and an online reporting capability. You charge a one-time fee of *x* for a license for the product, a yearly fee of *y* for a maintenance contract, and a recurring monthly fee of *z* for use of the online reporting. There is a specific structure to this product offering and pricing, and this structure must be replicated in your model design.

As another example, if your industry has a particular standard for collecting costs within cost centers, you should design your model to accommodate these particular cost roll up requirements.

Validate structural assumptions with your internal subject matter experts and owners of functional areas within the business. You must clearly understand the assumptions about operating structure from your internal experts before developing the model.

Operating Variables

Operating variables are the variable unit and cost data that you plug into the model. Various spreadsheets within your model serve as the user interface for the contextual input of variables. It is critical to understand what variables are to be incorporated into the model. The selection of variables determines the options for playing "what if?" The design of this portion of the model is very important. Think it through carefully. The best time to define these variables is during the previously described structural design requirements gathering process.

So, for example, using the aforementioned structure design example, you would design your model to accept the projected number of unit sales of *x*, *y*, and *z* over time and the projected fees charged for *x*, *y*, and *z* over time. Your design will provide the user with an interface to input these variables.

■ **Note** There is often a time dimension to the recognition of many variable inputs. Pricing, cost, and salary assumptions will change over time, and the time dimension must be accommodated for variables.

Here's another example: the salary for a systems administrator would be input discretely as $50,000 in year one of operations, but there also has to be an assumption about how that salary might grow over the years.

Period of Performance

I never believe in forecasts beyond 18 months. Having said that, your model should accommodate at least a five-year period. I have consistently been required by investors to provide a five-year plan. You must think through the multi-year evolution of your company even if you are not confident about the operating variables, like sales forecasts, in the outlying years.

I build my models from the bottom up to accommodate monthly data. Structurally, it is easier to handle data at a more granular level and then roll it up. A monthly design allows for simpler and shorter formulas that are more easily tested for error. A more granular design gives you the flexibility you need to accommodate seasonal volumes and to forecast monthly recurring revenues with better accuracy. It is very easy to roll up monthly detail into quarterly or yearly formats.

Major Functions Performed by the Model

The subsequent chapters of this book will take you through the details of how to build a model, but for now, we will think about what we want to accomplish with the model and how best to approach it at a higher level. We have already discussed that the model will output the standard financial reports: profit and loss statement, balance sheet, and statement of cash flows.

Your model will also address the following major functional areas of your technology business:

- *Revenue sources and drivers*: What types and volumes of revenue streams are projected for your company?
- *Cost of Goods Sold*: For each unit sold or service provided, what does providing it cost?
- *Sales and marketing*: What are the costs associated with the sales and marketing of the product or service?
- *Product development*: What is the cost of the product development life cycle, including system support infrastructure and investments in development tools?
- *Staffing and personnel*: What are the compensation costs of employees and consultants, including the cost of their benefits and employment taxes?
- *Operating expenses and overhead*: What is the cost of office space, utilities, and other facilities? What is the cost of professional services like attorney fees, patent applications, or tax preparation?
- *Cash and capital*: What are the net cash requirements of the company including provision for working capital?

Here are some other questions to answer before you begin modeling:

- What are the linkages and relationships between major categories of revenue and cost?
- For each of these major categories, what are the variables that I wish to be able to test?
- What are the major phases of company growth and development, and how do I show the phases within the structure of the model?
- Do I have valid data to serve as a basis for projections? If not, when will I have it?
- Do I understand the critical success factors and relationships of the business, and can I model these relationships in a manner that will drive out the impacts of variables on them?
- What type of “what if?” capabilities will make the model a valuable tool for analysis?
- And finally, do I have enough information about the way my company will work to design a meaningful model?

■ **Note** A critical success factor is an operational function or competency that a company must possess in order for it to be sustainable and profitable.

Summary

In this chapter, we have explored several key concepts related to technology startups. We have discussed common questions that entrepreneurs get from investors as well as strategies and principles that create success and credibility. You have also learned to assess the early-stage enterprise through the lens of *value*.

This chapter has emphasized business thinking about your company as you design your financial model. Your business thinking about the company will enhance the probability that your model will provide a meaningful analysis of your company, helping you explain your success strategies to a potential investor. Your model should be designed to drive out the value proposition of your company, to uncover the profit engine of your enterprise.

Developing a financial model for your technology startup accomplishes several objectives. The primary objective, an ability to clearly explain your idea in business terms, is a direct by-product of the financial modeling exercise. The model forces a business thinking process and an examination of the business concept. If you can model it, you can explain it!

The financial model is a computer program. Developing the model should be approached in the same manner that you would approach any software development project.

A well-designed financial model will allow you to drive out and understand the critical success factors in your business model. *What if* scenarios allow you to understand the magnitude of changes in revenue, cost, and profitability. Your ability to play "what if?" is dependent on a good design of the model.

The financial model will serve as a firm basis for your business plan, providing key financial information, charts, and data. You should develop your financial model first and then write your business plan.

The perceived value of your startup enterprise plays a major part in your ability to attract and retain the resources you need to implement your idea. Management should view accomplishments or the attainment of operational milestones in terms of their contribution to the value profile of the company.

Finally, remember the big three questions:

- How do you make money with it?
- How much investment do you need? Why do you need it, and when?
- What do you think your idea is worth?